

# Mobile Mapping

Mobile Mapping has developed at the core of LandScope's delivery of geospatial services. The technology is rapidly changing the way in which environments are measured, mapped, visualized and analysed.

Mobile Mapping systems are developed from the integration of various precise navigation and remote sensing technologies to a common mobile platform. The ability to integrate data from GNSS, inertial navigation systems and odometry sensors allows the surveyor to capture environmental data to an extraordinary positional accuracy and resolution even at full highway speeds.

The basic sensor package includes for high resolution LiDAR (laser scan) point cloud and 360° panoramic imagery data, however this is often scaled and may incorporate additional sensors including high resolution pavement analysis cameras, ground penetrating radar (GPR) and thermal imaging recording. Our systems are supported by both Leica and Topcon.



## Benefits of Mobile Mapping

- **Safety:** removing survey personnel from high risk environments
- **Speed:** enormous productivity gains
- **Accuracy:** extraordinary levels of absolute and relative accuracy of data
- **Resolution:** 24MP 360 degree camera and up to 1 million points per second of LiDAR
- **Scalability:** options for integration with multiple sensors including GPR and pavement camera systems
- **Versatility:** ability to host from multiple platforms

## Applications of Mobile Mapping

- Topographical Survey
- Asset Inventory
- Condition Record
- Visualisation
- Digital Twin Modelling

The technology is already being used to survey major road and rail projects, for mapping urban environments, understanding underground and underwater structures, and to improve safety in power infrastructure plants around the world.

Capturing high accuracy and high resolution data whilst travelling at speed ensures a safe, fast and cost-effective survey solution. Removing survey personnel from live environments, such as highway or rail, mitigates significantly health and safety risk including that posed through Covid-19. Campaigns that would traditionally have required weeks to survey are now possible in days.

Our mobile mapping systems are portable and may be deployed from various survey platforms on road, rail and water.



## Highways Survey Vehicle (HSV)

Our bespoke Highways Survey Vehicle is permanently established with the Leica Pegasus II Ultimate system providing either basic mobile mapping or integration with the custom fitted ground penetrating radar system from 3D-Radar. The HSV boasts the capability of capturing a high resolution record of both the above ground and below ground environment.



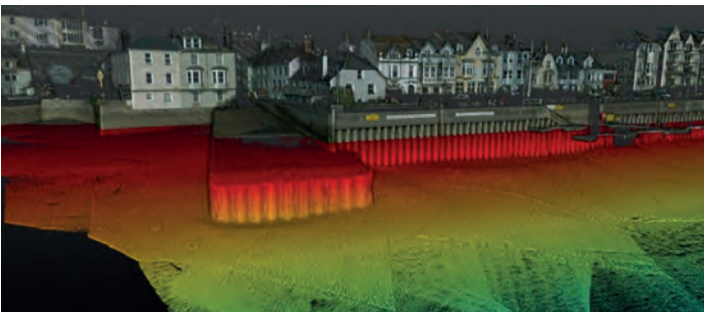
## Rough Terrain

Various rough terrain / off-road vehicles may be fitted with our mobile mapping systems providing survey capability in the most remote and inaccessible environments. Utilising the Leica Pegasus:Backpack system, the surveyor may even dismount and acquire data on foot when the going gets really tough!



## Marine Mobile Mapping

Our survey vessel fleet is fitted with mobile mapping systems in support of marine asset infrastructure management and inspection. The data is often integrated with data acquired from our multibeam sonar systems, delivering a seamless 3D model both above and below the water.



Integrated above and below water data set captured from our survey vessel Investigator (pictured above).

## The Systems

LandScope operates mobile mapping systems developed and supported by both Leica and Topcon. This multi-platform, multi-vendor offering is at the heart of our agnostic approach to technology and follows extensive accuracy performance testing of market available systems. It is of critical importance that our customers benefit from the best possible technical solution and none of us become locked in to proprietary formats and systems.



Leica Pegasus II Ultimate



Topcon IPS3



Leica Pegasus:Backpack

## Viewing the Data

The LiDAR point cloud data may be viewed in a variety of standard software packages including Esri, AutoDesk, Bentley and MapInfo, and when combined with the photography, using an asset extraction tool such as Orbit GT, real value can be realised with asset information being extracted quickly and accurately.

Orbit GT software optimises the use of mobile mapping data to enhance the user experience from a basic viewing, content overlay and measurement environment through to a complete end to end 3D solution. The user has access to feature extraction capabilities, point cloud visualisation tools and data sharing potential to obtain maximum value from the mobile mapping data.



Orbit GT software supports all 3D mapping data and has products to manage, extract, process and share. The screenshots above are from a highways mapping project and show the 360-degree imagery and point cloud data within Orbit's 3DM Feature Extraction software.

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